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17. ABSTRACT (MAX. 250 WORDS)

A comparison of number systems is made in the first section of the c lasswork materials. A chart comparing pre-historic, Babylonian, and Egyptian number systems is presented, as well as a work sheet for Egyptian hieroglyphics and a test on number systems. Also included are tests on graphic fractions, common denominators, the multiplication of fractions, ratios, and proportions. Worksheets accompany each test.

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Name _____ Period _____ Date _____

ED001666

Comparison of Number Systems

Pre-historic	Babylonian	Egyptian
1. uses symbols	1. uses symbols	1. uses symbols
2. stones and pictures used to tally - also tallied in dirt	2. clay tablets used to make their cuneiform marks in.	2. used papyrus to write their hieroglyphics on.
3. correspondence was their method of counting large groups of things	3. number system place values = 1, 10, 60, 600	3. number system place values = 1, 10, 100, 1000, 10,000, ...
4. a slash-mark = /	4. place value changes and face value remains the same.	4. place value and face value remain the same
	5. used unique symbols (<, Y, <, Y)	5. used unique symbols (C, ∩, 𓆑)
		6. / = slash mark (same as prehistoric mar

Math 7-8 Indian Unit

Origins Rathbone - Litz 2

CLEARINGHOUSE
Please Return To: CENTER FOR RESEARCH AND DEVELOPMENT
ON EDUCATIONAL DIFFERENCES
HARVARD GRADUATE SCHOOL OF EDUCATION
CAMBRIDGE, MASSACHUSETTS 02138

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Name_____ Period_____ Date_____

Egyptian Hieroglyphics
Number Systems Worksheet
#5

So far in class, we have looked at the ancient Egyptian symbols only up to the thousands place of value. Do you remember seeing the cartoon from Ripley's Believe It or Not the other day in class? If you do, you realized that the Egyptians had more place values than we are studying.

What are the place values that we have learned so far? Give their symbol: _____ _____.

_____ _____

Now, look at the following hieroglyphic. See if you can identify the three additional Egyptian place values.

_____ _____ _____ _____

We already know the one's place, the ten's place, the hundred's place, and the thousand's place. What do you think the other places are?

_____ _____

_____

How would you write the following number hieroglyphically?

4,321,242

(first, you have to find the value of each place)

one's _____ thousands _____ millions _____

Now, write the appropriate symbols for the number.

Translate the following numerals into the hieroglyphic symbols.

1. 1, 346, 789 _____

2. 6, 849, 233 _____

3. 4, 222, 222 _____

4. 6, 342, 243 _____

5. 5, 451, 139

6. 433, 332, 800 _____

7. 1, 246, 336 _____

For homework, write ten numerals in our own language system and translate them into hieroglyphics. Each number must be at least as large as a hundred thousand.

6

7

8

9

10

NAME_____ PERIOD__ DATE___

Unit Test On NUMBER SYSTEMS

Directions: Answer each question by filling in the blank with the correct answer.

1. At a correspondence of "1 picture: 6 sheep," four pictures painted on a cave man's wall stands for ___ sheep.

2. A cave man would have ___ stones in a pile if he counted twelve sheep using a correspondence of "3 sheep: 1 stone."

3. Was the cave man's system of counting more simple or more difficult than the Babylonian System?___

4. In Cuneiform writing, the symbol < stands for what two numerals?

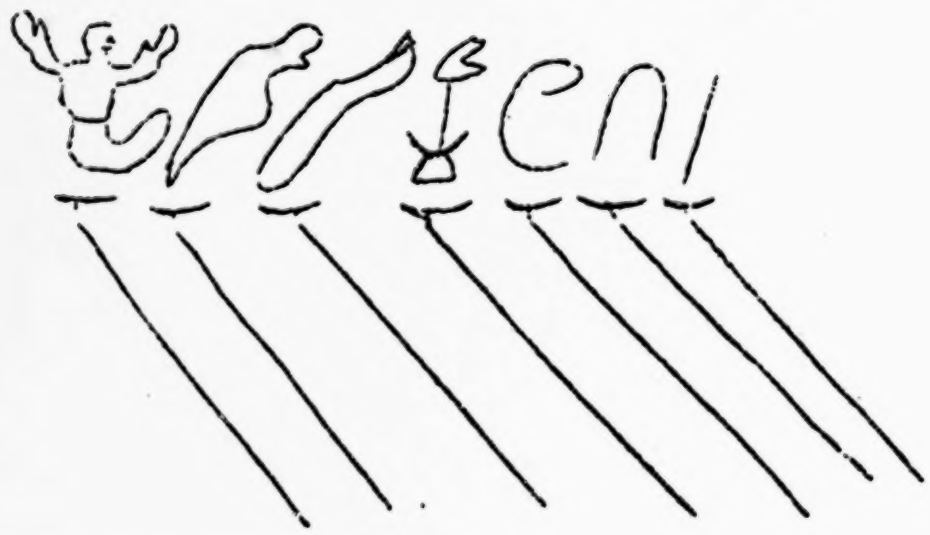
___ and ___

5. The Cuneiform symbol which stands for 600 is ___.

6. <YYY<<Y equals what number? ___

7. Is their a difference between place value and face value in the Babylonian Number System?___

8. 9. Label the place values of the following Egyptian Hieroglyphic.



Write your answere on the lines under each symbol.

10. What is the following number?

11. Write this number in hieroglyphics. 1,211,328

12. Is there a difference between place value and face value in hieroglyphics?_____

13. <<<YY equals what symbols in hieroglyphics?_____

14. Name one way in which the Egyptian System of Hieroglyphics is like the system of counting we use today._____

15. Write this number in hieroglyphics. 742,031

16. What number does our number system have that no other system we have studied has?

17. What is the function of the numeral mentioned in question number 16?

18. Look at the following number and answer the questions about it.
9,437,681

a. What numeral is in the ten's place?_____

b. What numeral is in the thousand's place?_____

c. What numeral is in the millions place?_____

d. What numeral is in the one-hundred thousands place?_____

19. Is our number system like the Babylonian or the Egyptian System when we compare face value and place value?_____

20. How many ones equal one ten?_____

21. How many tens equal one hundred?_____

22. How many hundreds equal one thousand?_____

23. How many ones equal one thousand?_____

24. Write the number which has: 3 thousands
19 tens
2 ones
5 one hundreds
_____

25. Write the number which has; ~~20~~ 20 tens
3 ones _____

26. Write the number which has: 17 hundreds
10 tens
8 ones _____ _____

27. 607 equals 6 hundreds, _____tens, 7 ones.

28. 93 equals ____tens, ___ ones.

29. 604 equals 4 hundreds, _____tens, four ones.

30. 8326 equals 7 thousands, ____hundreds, 2 tens, 6 ones.

31 Give the numerals for the following:

a. three million, one hundred seventy-five thousand, forty-three._____

b. 12 thousand, seven hundred thirty-six._____

32. Write the follwoing in word statements:

a. 4,366

b. 19, 007

33. Which is larger? 1,101,648 or 1,110,648 Circle the correct answer.

34. Which is larger? 29,647 or 27,674 Circle the correct answer.

35. Which is larger? 92,420 or 22,249 Circle the correct answer.

Name_____ Period_____

Homeroom Number_____ Date_____

TEST ON PRE-HISTORIC, BABYLONIAN AND EGYPTIAN NUMBER SYSTEMS

Multiple Choice (Circle the correct answer.)

1. When early cave men roamed the earth with their flocks of sheep and cattle, they used _____ to account for their animals.

(bullets, stones, numbers, dice,)

2. The manner of counting where the picture represents two animals is called _____ correspondence.

(1:1, 1:4, 1:0, 1:2)

3. A number is only a _____ for a group or collection of objects.

(account, numeral, symbol, teacher,) .

4. <YY is an example of _____.

(chicken tracks, hieroglyphics, cuneiform, numerals)

5. Y is a symbol which stands for a group of _____ objects.

(1000, 600, 10, 60)

6. < is a symbol which stands for a group of _____ objects.

(900, 1, 60, 10)

Which was used first?

(our numbers, stones, numbers, dice)

7. The Egyptian numbers are called _____ .

(cuneiform, terrible, ~~xxxxxfxxx~~ pictures, hieroglyphics)

8. represents the numeral _____.

(600, 10, 60, 1000)

Fill in the correct answer in the blank spaces.

11. Write the four place values of the Egyptian Number System.

a. _____ c. _____

b. _____ d. _____

12. Write the four place values of the Babylonian Number System.

a. _____ c. _____

b. _____ d. _____

13. At a correspondence of 1 stone : 4 sheep,

a. 3 stones equals _____ sheep

b. _____ stones equals 20 sheep

14. Give the numerals for the following: (do any scrapwork on back)

a. <Y<Y = _____.

b. <<< YYY <<<< YYYY = _____
YY <<<

c. ∩∩∩∩ /// = _____

d. 𓎆 𓎆𓎆 ∩∩∩ // = _____
𓎆𓎆 ∩∩

15. Give the Babylonian symbols for the following numerals: (scrapwork on back)

a. 64 = _____

b. 1,269 = _____

16. Give the Egyptian symbols for the following numerals: (do scrapwork on back)

a. 1886 = _____

b. 1964 = _____

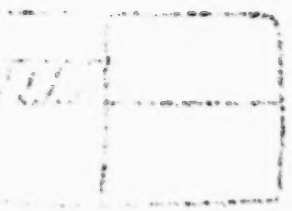
c. 234 = _____

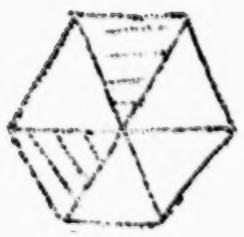
Name _____ Period _____ Date _____

Fraction Practice

= ___ = ___

= ___ } to the proper # of parts

 = ___

 = ___ = ___

= ___

= ___

MAKE UP FOUR OF YOUR OWN BELOW

Name _____ Period 8th 206 Date _____
↳ period 7

The following is a list of prices to cities which may be included on our tour. These are the prices as gotten from the New York Times. All these are from Kennedy International Airport, New York City.

New York to London, England: $940.00
New York to Cairo, Egypt: included is a tour of African states and capitol cities. $2490.00
New York to Miami, Fl: $90.00
New York to Paris, France: $150.00
New York to Rome, Italy: $940.00
New York to Spain — included is a tour of Spanish cities: $895.0
New York to Hawaii: $499.95
New York to London — includes tour of European capitols: $598.0

You will remember that we decided each of us could spend $10,000.00 a piece. Your task is to compute what part of our total allowance, each tour is. (It may be necessary to round off some of the tour prices.)

London tour $\frac{94¢}{10{,}000} = \frac{47}{500} = \sim\frac{5¢}{500} = \frac{1}{10}$

African tour

Name _____ Period _____ Date _____

Score _____

COMMON DENOMINATORS

Examples:

a) $\frac{1}{3}, \frac{1}{4}$ ans = $\boxed{12}$ because $3\overline{)12}^{4\,(\text{no R.})}$ + $4\overline{)12}^{3\,(\text{No R.})}$

b) $\frac{1}{6}, \frac{1}{2}$ ans = $\boxed{6}$ because $6\overline{)6}^{1\,(\text{no R.})}$ + $2\overline{)6}^{3\,(\text{no R.})}$

c) $\frac{1}{3}, \frac{1}{4}, \frac{1}{2}$ ans = $\boxed{12}$ because $3\overline{)12}^{4}$, $4\overline{)12}^{3}$, + $2\overline{)12}^{6}$

---

common denominator (C.D.) is a number which is just big enough so each denominator can be divided evenly into it.

Find a C.D. for each set of fractions. SHOW YOUR WORK.

$\frac{1}{3}, \frac{1}{5}$ ans $\square$ because $3\overline{)\ \ }$ $5\overline{)\ \ }$

$\frac{1}{9}, \frac{1}{4}$ ans $\square$ because $9\overline{)\ \ }$ $4\overline{)\ \ }$

$\frac{1}{2}, \frac{1}{3}$ ans $\square$ because $2\overline{)\ \ }$ $3\overline{)\ \ }$

$\frac{1}{8}, \frac{1}{2}$ ans $\square$ because $8\overline{)\ \ }$ $2\overline{)\ \ }$

$\frac{1}{9}, \frac{1}{6}$ ans $\square$ because $9\overline{)\ \ }$ $6\overline{)\ \ }$

⑥ $\frac{1}{7}, \frac{1}{2}$ ans $\square$ because $7\overline{)\ \ }$ $2\overline{)\ \ }$

⑦ $\frac{1}{6}, \frac{1}{5}$ ans $\square$ because $6\overline{)\ \ }$ $5\overline{)\ \ }$

⑧ $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ ans $\square$ because $2\overline{)\ \ }$ $3\overline{)\ \ }$ $4\overline{)\ \ }$

⑨ $\frac{1}{9}, \frac{1}{3}, \frac{1}{27}$ ans $\square$ because $9\overline{)\ \ }$ $3\overline{)\ \ }$ $27\overline{)\ \ }$

⑩ $\frac{1}{10}, \frac{1}{5}, \frac{1}{100}$ ans $\square$ because ____ ____

Name_____ Date_____ Period_____

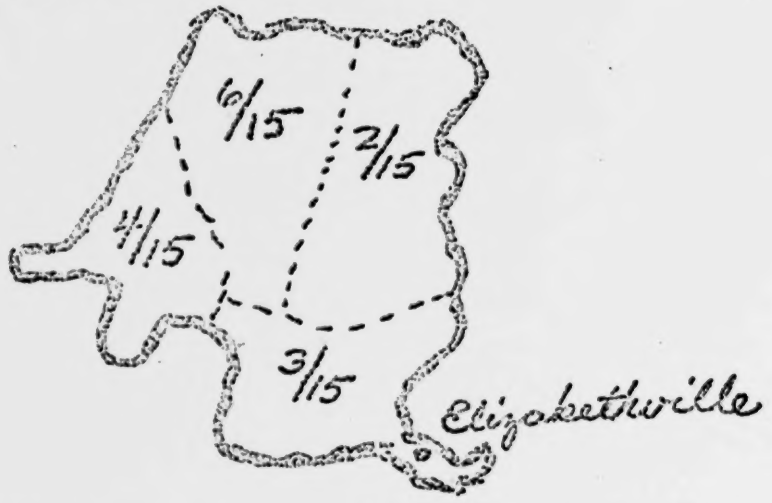
PROBLEM SHEET ON THE MULTIPLICATION OF FRACTIONS

You may have read in the newspaper, or heard on the radio, or seen on the TV, news about the recent rebel uprising in the Congo. Where is the Congo? Last week, the US and Belgian governments send paratroopers into the Congo to rescue Whites from the killing hands of revolting rebels. The armed interference was successful and many Whites were rescued; however, the rebels slaughtered a large number of missionaries and news correspondents before the soldiers arrived.

Look at the following facts about this military action:

1. 600 troops were flown into the Congo. $\frac{1}{2}$ of the troops were Belgian, 3/8 of the troops were American, and 1/8 of the troops were English.

2. The following is a map of the Congo. You can see four separate areas on the map. Notice that each area has a fraction in it. This fraction represents the number of the total number of troops sent to that particular area.



3. The planes that flew the troops in could carry only 40 paratroopers apiece.

4. 25 troops were killed in the military action. Approximately 485 rebels were killed.

From the above facts, and your knowledge about the multiplication of fractions, answer the following questions, on a separate sheet.

a. How many troops did each country send in?
b. How many troops were sent to each area of the Congo?
c. How many planes were used to fly the troops to each of the four areas in the Congo?
d. What fraction represents the ratio of rebels killed to para-troopers killed?

[illegible] 1/7 the size of the United States. If

Name _____ Date _____

Ratios

Fill in the blanks in the following definition:

A _____ is a comparison of _____ quantities.

—for example: $\frac{3 \text{ seats}}{5 \text{ seats}}$, $\frac{1 \text{ window}}{6 \text{ windows}}$, $\frac{12 \text{ men}}{15 \text{ men}}$

Ratios may also express rates. Rates are a _____ of _____ quantities.

—for example: $\frac{6 \text{ miles}}{1 \text{ hour}}$, $\frac{12 \text{ feet}}{1 \text{ second}}$, $\frac{14 \text{ seconds}}{21 \text{ feet}}$

You may not compare two items of a same category. For example the <u>following are wrong</u>.

$\frac{6 \text{ inches}}{1 \text{ foot}}$ This is WRONG!

$\frac{8 \text{ feet}}{1 \text{ mile}}$ This is wrong!

$\frac{2 \text{ feet}}{1 \text{ yard}}$ This is wrong

Why are these wrong? _____

_____.

To compare 6 inches to one foot, you must change feet to inches $\frac{6 \text{ inches}}{12 \text{ inches}}$

To compare 8 feet to 1 mile, you must change miles to feet. $\frac{8 \text{ feet}}{5{,}280 \text{ feet}}$

To compare 2 feet to 1 yard, you must change yards to feet. $\frac{2 \text{ feet}}{\quad \text{feet}}$

36 inches to 2 yards = ——

128 minutes to 4 hours = ——

15 feet to 7 yards = ——

Do the following:

feet to 2 yards = ——

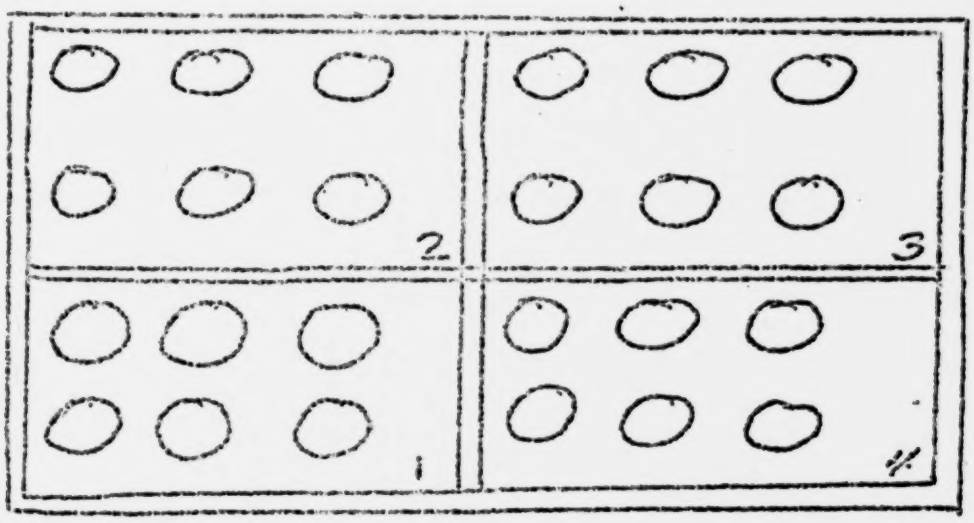
36 inches to 5 feet = ——

minutes to 2 hours = ——

900 feet to 2 miles = ——

Name _____ Ratio Worksheet #1

This is a picture of four 6-packs of Coke as they are packed in a wooden case. You are looking at the case as if it were placed at your feet - this is a top view. The sections are numbered 1, 2, 3, and 4.



Answer these questions:

1. How many sets (or groups) of 6 coke bottles are there? _____
2. What is the total number of cokes in the case? _____
3. What is the ratio of the cokes in section 1 to all the cokes in the case? _____ How do you say this?
4. What is the ratio of the cokes in sections 1 and 2, to all the cokes in the case? _____ How is this said?
5. What is the ratio of the cokes in sections 3, 1, and 2, to all the cokes in the case? _____ How is this said?

Now shade in two bottles in each section.
Tell what the following ratios represent.

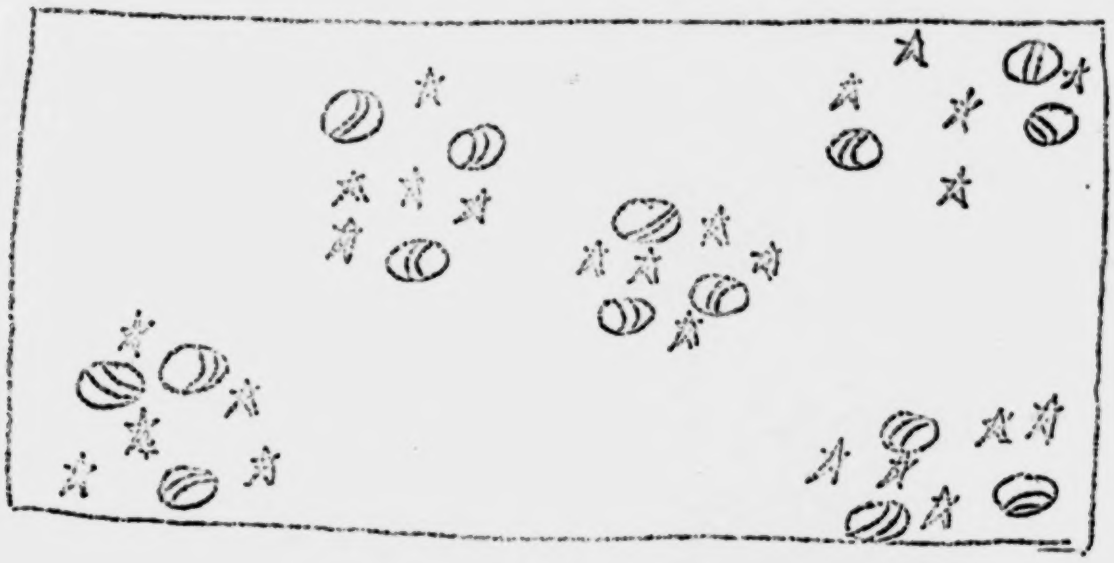
2/4 _____ 6/2 _____

8/4 _____ Write the meaning of a ratio: _____

8/24 _____ _____

Name _____ Ratio #2

Look at the following picture. ○ is a ball, and ☆ is a star.



How many groups of stars and balls are there? ____
How many stars and balls are there in EACH group? ____ stars, ____ balls.

What is the ratio of balls to stars for one group? ____
" " " " " stars " balls " " " " ? ____
What is the ratio of stars to balls for three groups? ____
" " " " " balls " stars " " " " ? ____
What is the ratio of stars to balls for five groups? ____
" " " " " balls " stars " " " " ? ____

Now write all the ratios of balls to stars that you can find in the above picture?
Are these all equal - do they reduce to the same value? ____ = ____ = ____ = ____ = ____

Cross out any of these ratios that do not apply to the above picture — tell what they mean.

ite _____ Period _____ Name _____

Ratio and Proportion

CANNED GOODS SALE !!!

Fruit Cocktail	3 cans for 29¢	Tomato Juice	3 cans for 39¢
Early June Peas	7 cans for 99¢	Frozen Lemonade	6 cans for 75¢
Tomatoes	5 cans for 54¢	Apricots	3 cans for 40¢
Sweet Potatoes	2 cans for 47¢	Plums	3 cans for 43¢
		Frozen Orange Juice	6 cans for $1.00

1. Write a ratio about the price of fruit cocktail. _____

2. Here is a proportion for figuring the cost of 6 cans of fruit cocktail $\frac{3 \text{ cans}}{29¢} = \frac{6}{?¢}$. How much did 6 cans cost? _____¢

3. Write a ratio to show the cost of orange juice. _____

4. Now make a proportion for figuring the cost of 2 dozen cans. ____ = ____ How much did 2 dozen cans cost? _____

5. A church group bought 50 cans of frozen lemonade. Make a proportion for figuring the cost of 50 cans.

   How much did 50 cans cost? _____

6. Write a proportion for finding the cost of 4 cans of sweet potatoes. How much did they cost? _____

7. Which costs more: 4 cans of potatoes or 3 cans of tomato juice?

   _____

ate _____ Period _____ Name _____

Jim gets 40% of the team's points (4 out of 10 are by Jim).

$\frac{4}{10} = \frac{\square}{100}$ Put the missing number in the square.

If Jim's teams wins against Smith today with 40 points, write a proportion using Jim's ratio of $\frac{4}{10}$, and find how many points Jim must make to keep his average.

30 boys are on the team; 25 get to play today. Write a fraction comparing boys playing to all the boys on the team.

If only 6 boys could go to the game, how many would play – and still keep the ratio in example ③? (Use a proportion).

Date _____ Period ___ Name _____

The last worksheet on ratio and proportion!

A ratio is a way to compare 2 groups or numbers.

Write a ratio comparing the 1st group to the 2nd.

example: ••• ••• $\frac{3}{3} = 1$ (Reduce!)

a) ••••• _____

b) |||| |||| |||| |||| |||| |||| _____

c) △△△△△△ △△△△ _____

A proportion is when 2 ratios are equal.

example $\frac{2}{3} = \frac{8}{12}$ proof $2 \times 12 = 8 \times 3$

Put a "P" next to every example that is a proportion.

a) $\frac{3}{4} = \frac{9}{10}$

b) $\frac{5}{8} = \frac{10}{12}$

c) $\frac{14}{6} = \frac{7}{3}$

d) $\frac{80}{4} = \frac{20}{1}$

e) $\frac{17}{20} = \frac{85}{100}$

f) $\frac{\square}{\triangle} = \frac{\square}{\triangle}$

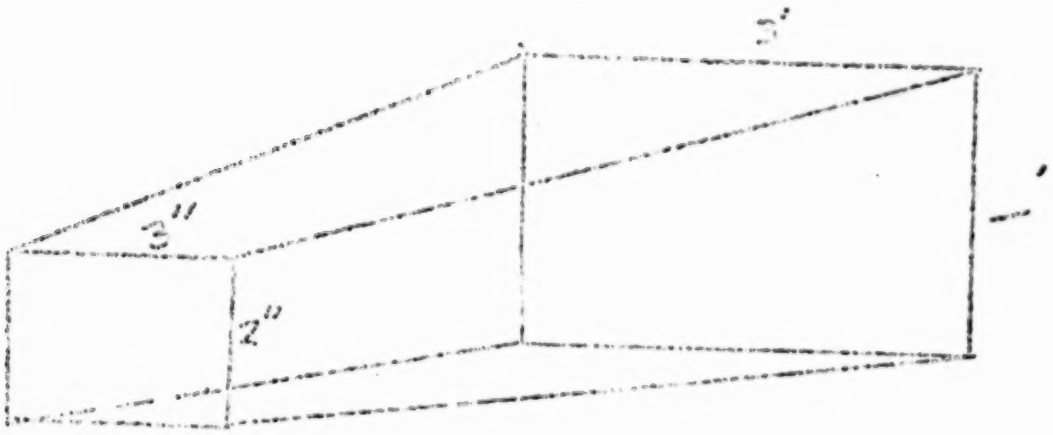
Find the missing number.

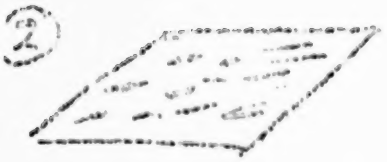
a) $\frac{3}{4} = \frac{\square}{16}$

b) $\frac{\square}{16} = \frac{4}{64}$

c) $\frac{4}{9} = \frac{48}{\square}$

Date _____ Period _____ Name _____



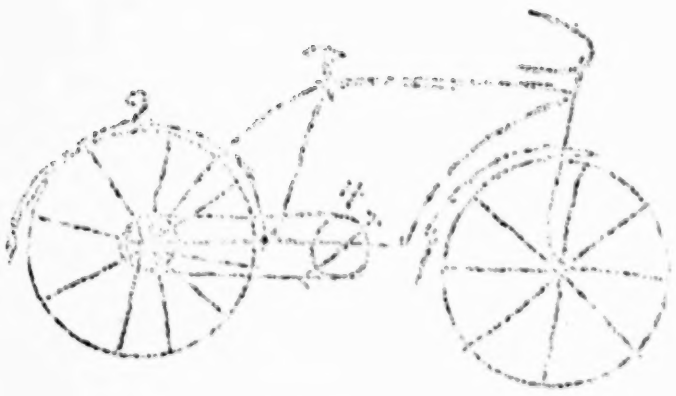
(2) 

88 tiles / ft.²

792 tiles / ft.² _____

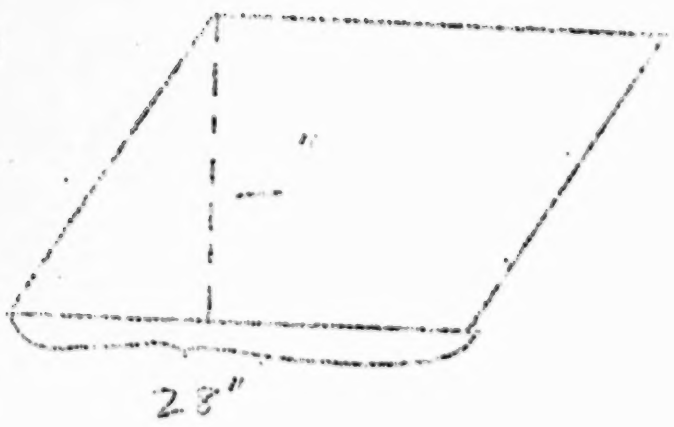
(3) 5 hrs → 310 miles

7 hrs → ____ miles

(4) 

9" rear wheel 432 r.w

4" pedal wheel ___ p.w

(5) 

height : base

3 : 7

___ : 28"

In this class we have looked at ratios that we said were proportional. We learned that the meaning of proportional had something to do with TWO EQUAL RATIOS. Today I have showed you some shapes that are proportiaml. Now we are going to look at some Ads from TIME MAGAZINE that have some proportional figures in them. We will be able to prove the figures are proportional by saying THE PRODUCT OF THE MEANS EQUALS THE PRODUCT OF THE EXTREMES.

After you have seen the advertisement you will notice that similar shapes are drawn below.

#1

#2

These shapes look the same. This means that they could be proportional. Let us prove it as we said we would above. Do the work at the bottom of this sheet of paper as I do it on the board. If you don't understand what I am doing, raise your hand and ask your question.

President Johnson recommends 99.7 billion dollar budget.

Gas 33.9

2.5 million cut from N.Y.S. budget.

All time low for barometer reading: 24.37 inches and rising.

.003 of an inch thick

Batting average: .394

What is a decimal? What does a decimal show?

When are decimals used? How do you write decimals?

How to use decimals. Why use decimals?

Changing common fractions and back again.

Rounding off decimals. Changing decimals to percents,

Proving decimals are equal - like .4 = .4000

2 kinds of decimals: .25 and .333333....

Making sense of decimal numbers,

How long for this unit?

Machines use decimals

number line

newspaper articles + magazines

library

bulletin board

pictures

overhead + opaque projectors

models + diagrams

thermometer

Title for the Unit

"Numbers between numbers"?

- + ! . . > Homework assignment?